

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 02/00844A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61B17/64

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 6 036 691 A (RICHARDSON JAMES BRUCE) 14 March 2000 (2000-03-14) abstract; claim 1; figures 1,2 column 1, line 11-25 column 3, line 65 -column 4, line 1	1-14,17, 25 24
X	WO 94 06364 A (DESZCZYNSKI JAROSLAW ; DESZCZYNSKI WALDEMAR (PL); KARPINSKI JANUSZ) 31 March 1994 (1994-03-31) abstract; claim 1; figure 1 page 3 -page 4, paragraph 1	1-4,7,8, 10-14, 17-20
X	WO 96 19944 A (DANIELI GIORGIO S ; DANIELI GUIDO A (IT)) 4 July 1996 (1996-07-04) abstract; figure 1	1-8, 10-13, 21-23
	-/--	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

Z document member of the same patent family

Date of the actual completion of the international search

5 June 2002

Date of mailing of the international search report

19/06/2002

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Macaire, S

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 02/00844

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 803 924 A (GALE RICHARD MARK ET AL) 8 September 1998 (1998-09-08) abstract; figures 1,2B column 1, line 36-39 column 3, line 20 -column 4, line 29 column 6, line 61,62 ----	1-14
X	EP 0 383 419 A (MECRON MED PROD GMBH) 22 August 1990 (1990-08-22) abstract; claims 2,3,8; figures 1,3 column 4, line 18-22,36-48 ----	1-3,5, 7-10,17, 21,22
X	EP 0 953 317 A (ZACOUTO FRED) 3 November 1999 (1999-11-03) abstract; figures 1,3 paragraphs '0005!', '0010! ----	1,2,4,7, 14-16,24
X	US 6 176 860 B1 (HOWARD CHARLES) 23 January 2001 (2001-01-23) abstract; figures 1,7,8,11,12 column 1, line 64 -column 2, line 12 ----	1-8, 10-13
Y	US 5 976 125 A (GRAHAM THOMAS J) 2 November 1999 (1999-11-02) abstract; figures 3,4 ----	24
A	DE 198 55 254 A (RICHARD HANS ALBERT ;BEIER THOMAS (DE)) 8 June 2000 (2000-06-08) abstract; figures 1-3 column 2, line 50 -column 3, line 2 column 3, line 56-68 column 4, line 33-43 column 13, line 2-25 ----	10-13, 18-20
A	GB 2 223 406 A (UNIV BRISTOL) 11 April 1990 (1990-04-11) abstract; claims 1-3,7,10 -----	20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 02/00844

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 26-34
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 02/00844

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6036691	A	14-03-2000	AT 185058 T AU 696348 B2 AU 1248895 A BR 9408324 A CA 2137974 A1 CN 1142753 A CZ 9601729 A3 DE 69420973 D1 DE 69420973 T2 DK 734233 T3 EP 0734233 A1 ES 2136828 T3 WO 9516402 A1 GR 3031426 T3 JP 9509586 T NO 962460 A PL 315051 A1 SK 75596 A3 US 5843081 A US 5788695 A ZA 9410012 A	15-10-1999 10-09-1998 03-07-1995 19-08-1997 15-06-1995 12-02-1997 13-08-1997 04-11-1999 25-05-2000 11-12-2000 02-10-1996 01-12-1999 22-06-1995 31-01-2000 30-09-1997 12-08-1996 30-09-1996 05-03-1997 01-12-1998 04-08-1998 24-08-1995
WO 9406364	A	31-03-1994	PL 295943 A1 AU 5127793 A WO 9406364 A1	21-03-1994 12-04-1994 31-03-1994
WO 9619944	A	04-07-1996	IT MI942615 A1 EP 0783276 A1 WO 9619944 A1	24-06-1996 16-07-1997 04-07-1996
US 5803924	A	08-09-1998	GB 2280608 A AU 7272594 A EP 0712296 A1 WO 9504504 A1	08-02-1995 28-02-1995 22-05-1996 16-02-1995
EP 0383419	A	22-08-1990	DE 8901908 U1 EP 0383419 A1 JP 2215456 A	30-03-1989 22-08-1990 28-08-1990
EP 0953317	A	03-11-1999	FR 2778085 A1 EP 0953317 A1	05-11-1999 03-11-1999
US 6176860	B1	23-01-2001	IL 114714 A AT 193818 T AU 6918096 A DE 69608901 D1 DE 69608901 T2 EP 0840573 A1 CA 2226914 A1 WO 9703620 A1	27-12-1998 15-06-2000 18-02-1997 20-07-2000 07-12-2000 13-05-1998 06-02-1997 06-02-1997
US 5976125	A	02-11-1999	NONE	
DE 19855254	A	08-06-2000	DE 19855254 A1 AU 1860300 A WO 0032124 A1 EP 1135074 A1	08-06-2000 19-06-2000 08-06-2000 26-09-2001

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 02/00844

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
GB 2223406	A	11-04-1990	GB	2255284 A	04-11-1992

WO 02/078554
PCT/GB02/00844

PATENT COOPERATION TREATY

RECORDS	CHRG
18 OCT 2002	
PCT	
PARTNER	ACTIONED

From the INTERNATIONAL BUREAU

To: CHARIG, Raymond, J.
Eric Potter Clarkson
Park View House
58 The Ropewalk
Nottingham NG1 5DD
United Kingdom

NOTICE INFORMING THE APPLICANT OF THE
COMMUNICATION OF THE INTERNATIONAL
APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

Date of mailing (day/month/year) 10 October 2002 (10.10.02)		
Applicant's or agent's file reference ICOU/P26129PC		IMPORTANT NOTICE
International application No. PCT/GB02/00844	International filing date (day/month/year) 27 February 2002 (27.02.02)	
		Priority date (day/month/year) 28 March 2001 (28.03.01)
Applicant IMPERIAL COLLEGE INNOVATIONS LTD. et al		

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this notice:
KP, KR, US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:

AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EP, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OA, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW

The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this notice is a copy of the international application as published by the International Bureau on 10 October 2002 (10.10.02) under No. WO 02/078554

4. **TIME LIMITS for filing a demand for international preliminary examination and for entry into national phase**

The applicable time limit for entering the national phase will, subject to what is said in the following paragraph be 30 MONTHS from the priority date, not only in respect of any elected Office if a demand for international preliminary examination is filed before the expiration of 19 months from the priority date, but also in respect of any designated Office, in the absence of filing of such demand, where Article 22(1) as modified with effect from 1 April 2002 applies in respect of the designated Office. For further details, see PCT Gazette No. 44/2001 of 1 November 2001, pages 19926, 19932 and 19934, as well as the PCT Newsletter, October and November 2001 and February 2002 issues.

In practice, time limits other than the 30-month time limit will continue to apply, for various periods of time, in respect of certain designated or elected Offices. For regular updates on the applicable time limits (20, 21, 30 or 31 months, or other time limit), Office by Office, refer to the PCT Gazette, the PCT Newsletter and the PCT Applicant's Guide, Volume II, National Chapters, all available from WIPO's Internet site, at <http://www.wipo.int/pct/en/index.html>.

For filing a demand for international preliminary examination, see the PCT Applicant's Guide, Volume I/A, Chapter IX. Only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination (at present, all PCT Contracting States are bound by Chapter II.)

It is the applicant's sole responsibility to monitor all these limits.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer J. Zahra
Facsimile No. (41-22) 740.14.35	Telephone No. (41-22) 338.91.11

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date.

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum)

ICOU / P26129PC

Box No. I	TITLE OF INVENTION BONE FIXATED, ARTICULATED JOINT LOAD CONTROL DEVICE	
Box No. II	APPLICANT	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.) Imperial College Innovations Ltd 47 Prince's Gate Exhibition Road London SW7 2QA United Kingdom		<input type="checkbox"/> This person is also inventor. Telephone No. Facsimile No. Teleprinter No.
State (that is, country) of nationality: GB		State (that is, country) of residence: GB
This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input checked="" type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box		
Box No. III	FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.) DRAPER, Edward 771 London Road Loudwater Buckinghamshire HP11 1HW United Kingdom		This person is: <input type="checkbox"/> applicant only <input checked="" type="checkbox"/> applicant and inventor <input type="checkbox"/> inventor only (if this check-box is marked, do not fill in below.)
State (that is, country) of nationality: GB		State (that is, country) of residence: GB
This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box		
<input type="checkbox"/> Further applicants and/or (further) inventors are indicated on a continuation sheet.		
Box No. IV	AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE	
The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: <input checked="" type="checkbox"/> agent <input type="checkbox"/> common representative		
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) Charig, Raymond J Eric Potter Clarkson Park View House 58 The Ropewalk Nottingham NG1 5DD United Kingdom		Telephone No. (0115) 9552211 Facsimile No. (0115) 9552201 Teleprinter No. 37540 Potter G
<input type="checkbox"/> Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.		

Box No.V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes; at least one must be marked):

Regional Patent

- ☒ **AP** ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, MZ Mozambique, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☒ **EA** Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ **EP** European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, TR Turkey and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ **OA** OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GQ Equatorial Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

National Patent (if other kind of protection or treatment desired, specify on dotted line):

- | | |
|---|---|
| <input checked="" type="checkbox"/> AE United Arab Emirates | <input checked="" type="checkbox"/> LC Saint Lucia |
| <input checked="" type="checkbox"/> AG Antigua and Barbuda | <input checked="" type="checkbox"/> LK Sri Lanka |
| <input checked="" type="checkbox"/> AL Albania | <input checked="" type="checkbox"/> LR Liberia |
| <input checked="" type="checkbox"/> AM Armenia | <input checked="" type="checkbox"/> LS Lesotho |
| <input checked="" type="checkbox"/> AT Austria | <input checked="" type="checkbox"/> LT Lithuania |
| <input checked="" type="checkbox"/> AU Australia | <input checked="" type="checkbox"/> LU Luxembourg |
| <input checked="" type="checkbox"/> AZ Azerbaijan | <input checked="" type="checkbox"/> LV Latvia |
| <input checked="" type="checkbox"/> BA Bosnia and Herzegovina | <input checked="" type="checkbox"/> MA Morocco |
| <input checked="" type="checkbox"/> BB Barbados | <input checked="" type="checkbox"/> MD Republic of Moldova |
| <input checked="" type="checkbox"/> BG Bulgaria | <input checked="" type="checkbox"/> MG Madagascar |
| <input checked="" type="checkbox"/> BR Brazil | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia |
| <input checked="" type="checkbox"/> BY Belarus | <input checked="" type="checkbox"/> MN Mongolia |
| <input checked="" type="checkbox"/> BZ Belize | <input checked="" type="checkbox"/> MW Malawi |
| <input checked="" type="checkbox"/> CA Canada | <input checked="" type="checkbox"/> MX Mexico |
| <input checked="" type="checkbox"/> CH and LI Switzerland and Liechtenstein | <input checked="" type="checkbox"/> MZ Mozambique |
| <input checked="" type="checkbox"/> CN China | <input checked="" type="checkbox"/> NO Norway |
| <input checked="" type="checkbox"/> CO Colombia | <input checked="" type="checkbox"/> NZ New Zealand |
| <input checked="" type="checkbox"/> CR Costa Rica | <input checked="" type="checkbox"/> PL Poland |
| <input checked="" type="checkbox"/> CU Cuba | <input checked="" type="checkbox"/> PT Portugal |
| <input checked="" type="checkbox"/> CZ Czech Republic | <input checked="" type="checkbox"/> RO Romania |
| <input checked="" type="checkbox"/> DE Germany | <input checked="" type="checkbox"/> RU Russian Federation |
| <input checked="" type="checkbox"/> DK Denmark | <input checked="" type="checkbox"/> SD Sudan |
| <input checked="" type="checkbox"/> DM Dominica | <input checked="" type="checkbox"/> SE Sweden |
| <input checked="" type="checkbox"/> DZ Algeria | <input checked="" type="checkbox"/> SG Singapore |
| <input checked="" type="checkbox"/> EE Estonia | <input checked="" type="checkbox"/> SI Slovenia |
| <input checked="" type="checkbox"/> ES Spain | <input checked="" type="checkbox"/> SK Slovakia |
| <input checked="" type="checkbox"/> FI Finland | <input checked="" type="checkbox"/> SL Sierra Leone |
| <input checked="" type="checkbox"/> GB United Kingdom | <input checked="" type="checkbox"/> TJ Tajikistan |
| <input checked="" type="checkbox"/> GD Grenada | <input checked="" type="checkbox"/> TM Turkmenistan |
| <input checked="" type="checkbox"/> GE Georgia | <input checked="" type="checkbox"/> TR Turkey |
| <input checked="" type="checkbox"/> GH Ghana | <input checked="" type="checkbox"/> TT Trinidad and Tobago |
| <input checked="" type="checkbox"/> GM Gambia | <input checked="" type="checkbox"/> TZ United Republic of Tanzania |
| <input checked="" type="checkbox"/> HR Croatia | <input checked="" type="checkbox"/> UA Ukraine |
| <input checked="" type="checkbox"/> HU Hungary | <input checked="" type="checkbox"/> UG Uganda |
| <input checked="" type="checkbox"/> ID Indonesia | <input checked="" type="checkbox"/> US United States of America |
| <input checked="" type="checkbox"/> IL Israel | <input checked="" type="checkbox"/> UZ Uzbekistan |
| <input checked="" type="checkbox"/> IN India | <input checked="" type="checkbox"/> VN Viet Nam |
| <input checked="" type="checkbox"/> IS Iceland | <input checked="" type="checkbox"/> YU Yugoslavia |
| <input checked="" type="checkbox"/> JP Japan | <input checked="" type="checkbox"/> ZA South Africa |
| <input checked="" type="checkbox"/> KE Kenya | <input checked="" type="checkbox"/> ZW Zimbabwe |
| <input checked="" type="checkbox"/> KG Kyrgyzstan | |
| <input checked="" type="checkbox"/> KP Democratic People's Republic of Korea | |
| <input checked="" type="checkbox"/> KR Republic of Korea | |
| <input checked="" type="checkbox"/> KZ Kazakhstan | |

Check-boxes reserved for designating States which have become Party to the PCT after issuance of this sheet:

- ☒ **PH** Philippines
- ☒ **EC** Ecuador

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)

3

Box No. VI PRIORITY CLAIM☐ Further priority claims are indicated in the Supplemental Box.

Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		National application: Country	regional application:* regional Office	international application: receiving Office
item (1) 28 March 2001	0107708.0	GB		
item (2)				
item (3)				

☒ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s): (1)

* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA)
(if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):

ISA /

Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):

Date (day/month/year)

Number

Country (or regional Office)

Box No. VIII CHECK LIST; LANGUAGE OF FILING

This international application contains the following number of sheets:

request : 3
description (excluding
sequence listing part) : 15
claims : 6
abstract : 1
drawings : 7
sequence listing part of
description : 0
Total number of sheets : 32

This international application is accompanied by the item(s) marked below:

1. ☐ fee calculation sheet
2. ☐ separate signed power of attorney
3. ☒ copy of general power of attorney; reference number, if any:
4. ☐ statement explaining lack of signature
5. ☐ priority document(s) identified in Box No. VI as item(s):
6. ☐ translation of international application into (language):
7. ☐ separate indications concerning deposited micro-organism or other biological material
8. ☐ nucleotide and/or amino acid sequence listing in computer readable form
9. ☐ other (specify):

Figure of the drawings which should accompany the abstract: 1

Language of filing of the International application: English

Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).



Raymond J Charig

1. Date of actual receipt of the purported international application:		For receiving Office use only		2. Drawings: <input type="checkbox"/> received: <input type="checkbox"/> not received:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:				
4. Date of timely receipt of the required corrections under PCT Article 11(2):				
5. International Searching Authority (if two or more are competent): ISA /		6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid.		

Date of receipt of the record copy by the International Bureau:

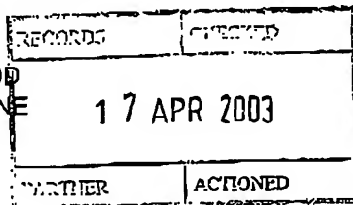
For International Bureau use only

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

Charig, Raymond G.
ERIC POTTER CLARKSON
Park View House
58 The Ropewalk
Nottingham NG1 5DD
GRANDE BRETAGNE



PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing
(day/month/year) 15.04.2003

Applicant's or agent's file reference

ICOU / P26129PC

IMPORTANT NOTIFICATION

International application No.
PCT/GB02/00844

International filing date (day/month/year)
27/02/2002

Priority date (day/month/year)
28/03/2001

Applicant

IMPERIAL COLLEGE INNOVATIONS LTD. et AL.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

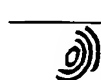
The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

For the purpose of deciding whether the claimed invention is patentable or not, the elected Offices may apply criteria additional to or different from the criteria on which the international preliminary examination report is based (see Articles 27(5), 33(5)). Additional criteria may include e.g. exemptions from patentability and the requirements of enabling disclosure and of clarity and support of claims.

Name and mailing address of the IPEA/



European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized officer

Koestel, G

Tel. +31 70 340-3544




PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference ICOU / P26129PC		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/GB02/00844	International filing date (day/month/year) 27/02/2002	Priority date (day/month/year) 28/03/2001
International Patent Classification (IPC) or national classification and IPC A61B17/64		
Applicant IMPERIAL COLLEGE INNOVATIONS LTD. et AL		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 8 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input checked="" type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application 		
Date of submission of the demand 14/10/2002		Date of completion of this report 15.04.2003
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 TX: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized officer Macaire, S Telephone No. +31 70 340 3115



10/472576

DT09 Rec'd PCT/PTO 25 SEP 2003

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB02/00844

I. Basis of the report

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-15 as originally filed

Claims, No.:

1-34 as originally filed

Drawings, sheets:

1/7-7/7 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB02/00844

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.☒ claims Nos. 25-34.

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 25 are so unclear that no meaningful opinion could be formed (*specify*):
see separate sheet☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.☒ no international search report has been established for the said claims Nos. 26-34.

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.☐ the computer readable form has not been furnished or does not comply with the standard.**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)

Yes: Claims

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB02/00844

	No:	Claims	1-24
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-24
Industrial applicability (IA)	Yes:	Claims	1-24
	No:	Claims	

2. Citations and explanations
see separate sheet

INTERNATIONAL PRELIMINARY International application No. PCT/GB02/00844
EXAMINATION REPORT - SEPARATE SHEET

Reference is made to the following documents:

- D1: US-A-6 036 691 (RICHARDSON JAMES BRUCE) 14 March 2000 (2000-03-14)
D2: WO 94 06364 A (DESZCZYNSKI JAROSLAW ; DESZCZYNSKI WALDEMAR (PL); KARPINSKI JANUSZ) 31 March 1994 (1994-03-31)
D3: EP-A-0 953 317 (ZACOUTO FRED) 3 November 1999 (1999-11-03)
D4: WO 96 19944 A (DANIELI GIORGIO S ; DANIELI GUIDO A (IT)) 4 July 1996 (1996-07-04)

The document D5 was not cited in the international search report. A copy of the document is appended hereto.

- D5: US-A-4 988 349 (PENNIG DIETMAR) 29 January 1991 (1991-01-29)

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

According to Rule 6.2(a), claims shall not rely, in respect of the technical features of the invention, on references to the drawings. Therefore independent claim 25 does not meet the requirement of Rule 6 (PCT).

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. [claim 1] The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document):

- an apparatus comprising (see fig.2):
 a first fixation assembly (15)
 a second fixation assembly (15')

INTERNATIONAL PRELIMINARY

International application No. PCT/GB02/00844

EXAMINATION REPORT - SEPARATE SHEET

a link assembly (32) coupled to the first fixation assembly by a first pivot and coupled to the second fixation assembly by a second pivot, the first and second fixation assembly thereby each being angularly displaceable relative to the link assembly (col. 1, lines 16-22).

The subject-matter of claim 1 is therefore not new (Article 33(2) PCT).

1.2 [claims 2-4, 7-14,17] Document D1 also discloses (the references in parentheses applying to this document):

- [claims 2, 3] the first fixation assembly (15) with a clamp and a plurality of pins (16) (fig. 2),
- [claim 4] the fixation assembly being rotatable about the longitudinal assembly of the first fixation assembly (ball-joint connection 14),
- [claims 7, 8] the pivot (ball-joint connection 14) between the first fixation assembly and the link assembly having two degrees of rotational freedom,
- [claim 9] the fixed separation member (32); the size of this element is fixed when bolt (39) is tightened (col. 4, lines 19-24),
- [claim 10] the variable separation member (32); the size of this element can change when bolt (39) is not tightened (col. 4, lines 19-24); with predetermined limits; this limit is given by the size of the elongate slot 12,
- [claims 11-13] the bias means between the pivots (length-adjustment done by the accessory device (28)),
- [claim 14] the means for limiting the angular displacement (fig. 1); the covers of the ball joints (17 and 14) limit the angular displacement,
- [claim 17] the drive means (28),

The subject-matter of claims 2-4, 7-14 and 17 is not new (Article 33(2) PCT).

2. [claim 1] Document D2 discloses (the references in parentheses applying to this document):

an apparatus comprising (see fig. 1):

a first fixation assembly (13), a second fixation assembly (14), a link assembly (3) coupled to the first fixation assembly by a first pivot and coupled to the second fixation assembly by a second pivot.

The subject-matter of claim 1 is not new over D2 (Article 33(2) PCT).

INTERNATIONAL PRELIMINARY

International application No. PCT/GB02/00844

EXAMINATION REPORT - SEPARATE SHEET

2.1 [claims 18-20] Document D2 also discloses sensors that monitor the load (pressure sensing element 21) (see page 2, second paragraph).

The subject-matter of claims 18-20 is therefore not new (Article 33(2) PCT).

3. [claim 1] Document D3 discloses (the references in parentheses applying to this document):

an apparatus comprising (see fig. 1):

a first fixation assembly (10'), a second fixation assembly (11'), a link assembly (7', 3') coupled to the first fixation assembly by a first pivot (5') and coupled to the second fixation assembly by a second pivot (6').

The subject-matter of claim 1 is also not new over D3 (Article 33(2) PCT).

3.1 [claims 15, 16, 21-22, 24] Document D3 also discloses:

- [claim 15] the means for varying separation as a function of the angular displacement (see paragraph 0010).
- [claim 16] the drive member varying the angular displacement (see paragraph 0016)
- [claim 21-22] the pair of link assembly (3', 7') (see fig. 1)
- [claim 24] the combination of two apparatuses,

The subject-matter of claim 15, 16, 21-22 and 24 is not new over D3 (Article 33(2) PCT).

4. [claim 1 and 21-23] Document D4 discloses (the references in parentheses applying to this document):

an apparatus comprising (see fig. 1):

a first fixation assembly, a second fixation assembly, two link assemblies coupled to the first fixation assembly by a first pivot and coupled to the second fixation assembly by a second pivot,

the pair of link assembly,

the two link members being disposed in a crosswise formation,

The subject-matter of claims 1 and 21-23 is not new over D4 (Article 33(2) PCT).

5. [claim 1, 5 and 6] Document D5 discloses (the references in parentheses applying to this document):

INTERNATIONAL PRELIMINARY

International application No. PCT/GB02/00844

EXAMINATION REPORT - SEPARATE SHEET

an apparatus comprising (see fig. 1):

a first fixation assembly (1), a second fixation assembly (2), a link assembly (3) coupled to the first fixation assembly by a first pivot (15) and coupled to the second fixation assembly by a second pivot (16),

engagement means (27, 28) for bone pins being rotatable about a transverse axis (col. 2, lines 40-43) and being rotatable about a longitudinal axis (ball-joints 14 and 15)

The subject-matter of claims 1, 5 and 6 is not new over D5 (Article 33(2) PCT).

PATENT COOPERATION TREATY

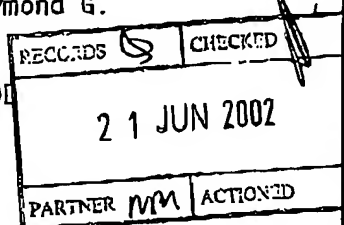
From the INTERNATIONAL SEARCHING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

To:

ERIC POTTER CLARKSON
Attn. Charig, Raymond G.
Park View House
58 The Ropewalk
Nottingham NG1 5DL
UNITED KINGDOMDate of mailing
(day/month/year)

19/06/2002

Applicant's or agent's file reference

ICOU / P26129PC

FOR FURTHER ACTION

See paragraphs 1 and 4 below

International application No.

PCT/GB 02/00844

International filing date
(day/month/year)

27/02/2002

Applicant

IMPERIAL COLLEGE INNOVATIONS LTD.

1. ☒ The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority



European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Luis-Miguel Paredes Sanchez

NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference ICOU / P26129PC	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, Item 5 below.	
International application No. PCT/GB 02/ 00844	International filing date (day/month/year) 27/02/2002	(Earliest) Priority Date (day/month/year) 28/03/2001
Applicant IMPERIAL COLLEGE INNOVATIONS LTD.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 36.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1
☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 02/00844

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61B17/64

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 6 036 691 A (RICHARDSON JAMES BRUCE) 14 March 2000 (2000-03-14) abstract; claim 1; figures 1,2 column 1, line 11-25 column 3, line 65 -column 4, line 1	1-14,17, 25 24
X	WO 94 06364 A (DESZCZYNSKI JAROSLAW ;DESZCZYNSKI WALDEMAR (PL); KARPINSKI JANUSZ) 31 March 1994 (1994-03-31) abstract; claim 1; figure 1 page 3 -page 4, paragraph 1	1-4,7,8, 10-14, 17-20
X	WO 96 19944 A (DANIELI GIORGIO S ;DANIELI GUIDO A (IT)) 4 July 1996 (1996-07-04) abstract; figure 1	1-8, 10-13, 21-23

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

5 June 2002

Date of mailing of the international search report

19/06/2002

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Macaire, S

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 02/00844

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 803 924 A (GALE RICHARD MARK ET AL) 8 September 1998 (1998-09-08) abstract; figures 1,2B column 1, line 36-39 column 3, line 20 -column 4, line 29 column 6, line 61,62 ----	1-14
X	EP 0 383 419 A (MECRON MED PROD GMBH) 22 August 1990 (1990-08-22) abstract; claims 2,3,8; figures 1,3 column 4, line 18-22,36-48 ----	1-3,5, 7-10,17, 21,22
X	EP 0 953 317 A (ZACOUTO FRED) 3 November 1999 (1999-11-03) abstract; figures 1,3 paragraphs '0005!', '0010! ----	1,2,4,7, 14-16,24
X	US 6 176 860 B1 (HOWARD CHARLES) 23 January 2001 (2001-01-23) abstract; figures 1,7,8,11,12 column 1, line 64 -column 2, line 12 ----	1-8, 10-13
Y	US 5 976 125 A (GRAHAM THOMAS J) 2 November 1999 (1999-11-02) abstract; figures 3,4 ----	24
A	DE 198 55 254 A (RICHARD HANS ALBERT ;BEIER THOMAS (DE)) 8 June 2000 (2000-06-08) abstract; figures 1-3 column 2, line 50 -column 3, line 2 column 3, line 56-68 column 4, line 33-43 column 13, line 2-25 ----	10-13, 18-20
A	GB 2 223 406 A (UNIV BRISTOL) 11 April 1990 (1990-04-11) abstract; claims 1-3,7,10 -----	20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 02/00844**Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 26-34
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 02/00844

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6036691	A	14-03-2000	AT 185058 T	15-10-1999
			AU 696348 B2	10-09-1998
			AU 1248895 A	03-07-1995
			BR 9408324 A	19-08-1997
			CA 2137974 A1	15-06-1995
			CN 1142753 A	12-02-1997
			CZ 9601729 A3	13-08-1997
			DE 69420973 D1	04-11-1999
			DE 69420973 T2	25-05-2000
			DK 734233 T3	11-12-2000
			EP 0734233 A1	02-10-1996
			ES 2136828 T3	01-12-1999
			WO 9516402 A1	22-06-1995
			GR 3031426 T3	31-01-2000
			JP 9509586 T	30-09-1997
			NO 962460 A	12-08-1996
			PL 315051 A1	30-09-1996
			SK 75596 A3	05-03-1997
			US 5843081 A	01-12-1998
			US 5788695 A	04-08-1998
			ZA 9410012 A	24-08-1995
WO 9406364	A	31-03-1994	PL 295943 A1	21-03-1994
			AU 5127793 A	12-04-1994
			WO 9406364 A1	31-03-1994
WO 9619944	A	04-07-1996	IT MI942615 A1	24-06-1996
			EP 0783276 A1	16-07-1997
			WO 9619944 A1	04-07-1996
US 5803924	A	08-09-1998	GB 2280608 A	08-02-1995
			AU 7272594 A	28-02-1995
			EP 0712296 A1	22-05-1996
			WO 9504504 A1	16-02-1995
EP 0383419	A	22-08-1990	DE 8901908 U1	30-03-1989
			EP 0383419 A1	22-08-1990
			JP 2215456 A	28-08-1990
EP 0953317	A	03-11-1999	FR 2778085 A1	05-11-1999
			EP 0953317 A1	03-11-1999
US 6176860	B1	23-01-2001	IL 114714 A	27-12-1998
			AT 193818 T	15-06-2000
			AU 6918096 A	18-02-1997
			DE 69608901 D1	20-07-2000
			DE 69608901 T2	07-12-2000
			EP 0840573 A1	13-05-1998
			CA 2226914 A1	06-02-1997
			WO 9703620 A1	06-02-1997
US 5976125	A	02-11-1999	NONE	
DE 19855254	A	08-06-2000	DE 19855254 A1	08-06-2000
			AU 1860300 A	19-06-2000
			WO 0032124 A1	08-06-2000
			EP 1135074 A1	26-09-2001

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 02/00844

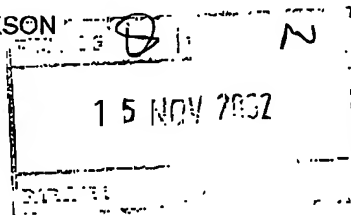
Patent document cited in search report		Publication date		Patent family member(s)	Publication date
GB 2223406	A	11-04-1990	GB	2255284 A	04-11-1992

PATENT COOPERATION TREATY

From the:
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

Charig, Raymond G.
ERIC POTTER CLARKSON
Park View House
58 The Ropewalk
Nottingham NG1 5DD
GRANDE BRETAGNE



PCT

WRITTEN OPINION

(PCT Rule 66)

Applicant's or agent's file reference ICOU / P26129PC		Date of mailing (day/month/year)	13.11.2002
International application No. PCT/GB02/00844	International filing date (day/month/year) 27/02/2002	Priority date (day/month/year) 28/03/2001	
International Patent Classification (IPC) or both national classification and IPC A61B17/64			
Applicant IMPERIAL COLLEGE INNOVATIONS LTD. et AL.			

1. This written opinion is the first drawn up by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain document cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

3. The applicant is hereby invited to reply to this opinion.


When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 28/07/2003.

Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized officer / Examiner Macaire, S
	Formalities officer (Incl. extension of time limits) Koestel, G Telephone No. +31 70 340 3544



10/472576
DT09 Rec'd PCT/PTO 25 SEP 2003**WRITTEN OPINION**

International application No. PCT/GB02/00844

I. Basis of the opinion

1. With regard to the elements of the international application (Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"):

Description, pages:

1-15 as originally filed

Claims, No.:

1-34 as originally filed

Drawings, sheets:

1/7-7/7 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

WRITTEN OPINIONInternational application No. **PCT/GB02/00844**☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been and will not be examined in respect of:

☐ the entire international application,☒ claims Nos. 25-34,

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 25 are so unclear that no meaningful opinion could be formed (*specify*):
see separate sheet☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.☒ no international search report has been established for the said claims Nos. 26-34.

2. A written opinion cannot be drawn due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.☐ the computer readable form has not been furnished or does not comply with the standard.**V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)

Claims 1-24

Inventive step (IS)

Claims

WRITTEN OPINION

International application No. PCT/GB02/00844

Industrial applicability (IA) Claims

2. Citations and explanations
see separate sheet

**WRITTEN OPINION
SEPARATE SHEET**

International application No. PCT/GB02/00844

Reference is made to the following documents:

- D1: US-A-6 036 691 (RICHARDSON JAMES BRUCE) 14 March 2000 (2000-03-14)
D2: WO 94.06364 A (DESZCZYNSKI JAROSLAW ; DESZCZYNSKI WALDEMAR (PL); KARPINSKI JANUSZ) 31 March 1994 (1994-03-31)
D3: EP-A-0 953 317 (ZACOUTO FRED) 3 November 1999 (1999-11-03)
D4: WO 96 19944 A (DANIELI GIORGIO S ; DANIELI GUIDO A (IT)) 4 July 1996 (1996-07-04)

The document D5 was not cited in the international search report. A copy of the document is appended hereto.

- D5: US-A-4 988 349 (PENNIG DIETMAR) 29 January 1991 (1991-01-29)

Re Item III**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

According to Rule 6.2(a), claims shall not rely, in respect of the technical features of the invention, on references to the drawings. Therefore independent claim 25 does not meet the requirement of Rule 6 (PCT).

Re Item V**Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. [claim 1] The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document):

an apparatus comprising (see fig.2):

a first fixation assembly (15)

a second fixation assembly (15')

a link assembly (32) coupled to the first fixation assembly by a first pivot and

**WRITTEN OPINION
SEPARATE SHEET**

International application No. PCT/GB02/00844

coupled to the second fixation assembly by a second pivot,
the first and second fixation assembly thereby each being angularly displaceable
relative to the link assembly (col. 1, lines 16-22).

The subject-matter of claim 1 is therefore not new (Article 33(2) PCT).

1.2 [claims 2-4, 7-14,17] Document D1 also discloses (the references in parentheses applying to this document):

- [claims 2, 3] the first fixation assembly (15) with a clamp and a plurality of pins (16) (fig. 2),
- [claim 4] the fixation assembly being rotatable about the longitudinal assembly of the first fixation assembly (ball-joint connection 14),
- [claims 7, 8] the pivot (ball-joint connection 14) between the first fixation assembly and the link assembly having two degrees of rotational freedom,
- [claim 9] the fixed separation member (32); the size of this element is fixed when bolt (39) is tightened (col. 4, lines 19-24),
- [claim 10] the variable separation member (32); the size of this element can change when bolt (39) is not tightened (col. 4, lines 19-24); with predetermined limits; this limit is given by the size of the elongate slot 12,
- [claims 11-13] the bias means between the pivots (length-adjustment done by the accessory device (28)),
- [claim 14] the means for limiting the angular displacement (fig. 1); the covers of the ball joints (17 and 14) limit the angular displacement,
- [claim 17] the drive means (28),

The subject-matter of claims 2-4, 7-14 and 17 is not new (Article 33(2) PCT).

2. [claim 1] Document D2 discloses (the references in parentheses applying to this document):

an apparatus comprising (see fig. 1):

a first fixation assembly (13), a second fixation assembly (14), a link assembly (3) coupled to the first fixation assembly by a first pivot and coupled to the second fixation assembly by a second pivot.

The subject-matter of claim 1 is not new over D2 (Article 33(2) PCT).

**WRITTEN OPINION
SEPARATE SHEET**

International application No. PCT/GB02/00844

2.1 [claims 18-20] Document D2 also discloses sensors that monitor the load (pressure sensing element 21) (see page 2, second paragraph).
The subject-matter of claims 18-20 is therefore not new (Article 33(2) PCT).

3. [claim 1] Document D3 discloses (the references in parentheses applying to this document):

an apparatus comprising (see fig. 1):

a first fixation assembly (10'), a second fixation assembly (11'), a link assembly (7', 3') coupled to the first fixation assembly by a first pivot (5') and coupled to the second fixation assembly by a second pivot (6').

The subject-matter of claim 1 is not new (Article 33(2) PCT).

3.1 [claims 15, 16, 21-22, 24] Document D3 also discloses:

- [claim 15] the means for varying separation as a function of the angular displacement (see paragraph 0010).
- [claim 16] the drive member varying the angular displacement (see paragraph 0016)
- [claim 21-22] the pair of link assembly (3', 7') (see fig. 1)
- [claim 24] the combination of two apparatuses,

The subject-matter of claim 15, 16, 21-22 and 24 is not new over D3 (Article 33(2) PCT).

4. [claim 1 and 21-23] Document D4 discloses (the references in parentheses applying to this document):

an apparatus comprising (see fig. 1):

a first fixation assembly, a second fixation assembly, two link assemblies coupled to the first fixation assembly by a first pivot and coupled to the second fixation assembly by a second pivot,

the pair of link assembly,

the two link members being disposed in a crosswise formation,

The subject-matter of claims 1 and 21-23 is not new over D4 (Article 33(2) PCT).

5. [claim 1, 5 and 6] Document D5 discloses (the references in parentheses applying to this document):

an apparatus comprising (see fig. 1):

**WRITTEN OPINION
SEPARATE SHEET**

International application No. PCT/GB02/00844

a first fixation assembly (1), a second fixation assembly (2), a link assembly (3) coupled to the first fixation assembly by a first pivot (15) and coupled to the second fixation assembly by a second pivot (16),

engagement means (27, 28) for bone pins being rotatable about a transverse axis (col. 2, lines 40-43) and being rotatable about a longitudinal axis (ball-joints. 14 and 15)

The subject-matter of claims 1, 5 and 6 is not new over D5 (Article 33(2) PCT).